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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/749,165	12/27/2000	Robert E. Sobol	10003840-1	4943

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EXAMINER
TUCKER, WESLEY J

ART UNIT	PAPER NUMBER
2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/749,165	SOBOL, ROBERT E.
	Examiner	Art Unit
	Wes Tucker	2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>04 November 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18,20,21 and 23-32</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-18,20,21 and 23-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>27 December 2000</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ~~& &~~ *11-4-05*

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____ .

DETAILED ACTION

Response to Arguments and Amendments

1.   Applicant's response to the Office Action, filed Nov. 4th 2005, has been entered and made of record.

2.   Applicant has amended claims 1, 2, 9-10, 12, 20-21 and 28-30. Claims 1-18, 20-21 and 23-32 are pending.

3.   Applicant's arguments have been fully considered and are not persuasive for at least the following reasons:

4.   Applicants arguments repeatedly presented have focused on the claim that the reference to Hillebrand does not disclose the claimed feature of:

wherein said image enhancer is configured to initiate, without user intervention, manipulation of said portion for enhancing said appearance in response to location of said facial blemish.

Examiner has pointed and will point again to the multiple passages in Hillebrand where it is disclosed that steps are performed automatically by a controller 200 (column 6, lines 15-16, column 7, lines 17-21 and 65-66, column 8, lines 33-36, 46-51 and 63-65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52, column 12, lines 2-3 and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed by the controller 200." This declaration is interpreted as the steps in the process take place entirely without user input based on data already programmed into the image

processor or controller. Although Hillebrand allows for user input at nearly every step of the process, it is also indicated clearly that in one embodiment, the steps are performed by the controller without user input.

Applicant argued repeatedly that Hillebrand teaches away from the present invention because Hillebrand allows for user input at several stages of the process.

For the sake of the argument Examiner cited the reference to Lawton that teaches automatically identifying and removing spots such as facial blemishes automatically (column 4, lines 18-25).

Applicant now argues in view of the reference to Lawton that no proper motivation has been given and even that there is no reason or motivation that one would want to combine the references, that improper hindsight has been used to reconstruct the elements of the claim, and that the reference of Hillebrand teaches away from performing the step:

> **wherein said image enhancer is configured to initiate, without user intervention, manipulation of said portion for enhancing said appearance in response to location of said facial blemish.**

Examiner will now explain why the combination of the cited art to Lawton and Hillebrand is analogous and motivated, why hindsight is not required, and why Hillebrand does not teach away from performing the step automatically.

Hillebrand and Lawton are analogous art in that they both teach seeking to remove facial blemishes, a very specific function in image processing. The motivation

to combine the Hillebrand and Lawton references is the same motivation to use a

computer to automate an image processing function and indeed any process automated

by a computer. When processes are automated and do not require user intervention, its

just one less thing the user or customer or technician has to do to achieve the desired

result of the computer program.

In response to applicant's argument that the examiner's conclusion of

obviousness is based upon improper hindsight reasoning, it must be recognized that

any judgment on obviousness is in a sense necessarily a reconstruction based upon

hindsight reasoning. But so long as it takes into account only knowledge which was

within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a

reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA

1971). It must be clear that absolutely no hindsight is required to see the benefit of

modifying the reference of Hillebrand to automate what is essentially one step in the

process of the facial image enhancement. This is not an unreasonable construction, it

is a combination of analogous art to teach that automation of the claimed step would be

an obviously motivated modification to the reference of Hillebrand and indeed an image

processor for the same reasons that any process is automated or performed by a

processor and requires no user dictation for the process to perform its given functions.

Any number of motivations can be given for automating the questioned step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. This is clearly beneficial in Hillebrand and analogous to the nature in which Hillebrand teaches automation by the controller at any number of steps. It is more than reasonable to assume that Hillebrand would benefit from automation of the step.

Applicant further argues that Hillebrand teaches away from the automation of the step in question because, as inferred by Applicant on page 19 of the arguments it is stated that:

> *Hillebrand specifically teaches that "Simulating improvements may be useful when the operator is recommending treatment of when the operator is recommending a treatment using a product which eliminates and/or hides skin defects to show the analyzed person the potential benefits of the product(s)." Allowing a user to submit inputs for controlling not only the magnitude of the improvements, as described above, but also for controlling the timing of the alleged image enhancements appears to be desirable in achieving the stated purpose of Hillebrand, and obviousness is concerned not with what is feasible but rather with what is desirable."*

It appears that Applicant is now inferring what allegedly may or may not be desirable in the operation of the invention of Hillebrand as justification for teaching away from the present claims.

Even if Hillebrand was concerned with the timing of the image enhancements, it would still be obvious to perform the enhancements automatically without user intervention as claimed perhaps on say a timer. How much time would Hillebrand want between the time of automatically detecting a defect and automatically enhancing it? It is not a question of whether it is feasible or whether it is desirable. Performing the image enhancement automatically is an obvious modification for Hillebrand alone and is clearly an obvious and motivated adjustment in view of the Lawton reference.

From the discussion it must now be clear that the combination of the references to Kinjo Hillebrand and Lawton are obvious and motivated and desirable for the reasons stated above.

Applicant further argues the use of the Kinjo reference to disclose detecting multiple faces with regard to claims 23-29. Applicant insists that Kinjo only detects multiple face candidate areas. It should be noted that the purpose of the invention of Kinjo is to detect face regions using overlapping detected regions and determining face regions based on variable thresholds and conditions for facial regions. It should be understood that if there are multiple face regions in a given image, that the invention of Kinjo will find them all depending on the various conditions and thresholds set for facial region determination (column 19, lines 1-20, column 20, lines 40-55 and column 21,

lines 45-65). Kinjo also teaches performing enhancement on the extracted face regions

once they are detected. It should now be understood that Kinjo discloses detecting all

facial candidate regions in an image and based on the conditions determines all existing

facial regions.

Applicant also argues that there is no obvious motivation as to why Kinjo would

detect multiple faces and enhance all of them. The reason for enhancing each face

region found requires little motivation or case for obviousness. The motivation for

performing enhancement on multiple faces is the exact same motivation for performing

it on one detected face, to enhance image quality or appearance, plain and simple.

All of Applicants arguments with regard to the remaining dependent claims rely

on the discussions regarding the combination of the three references with regard to

claim 1 and are therefore accordingly addressed in the explanation above.

The previously presented rejection is therefore maintained and accordingly made

FINAL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth
in section 102 of this title, if the differences between the subject matter sought to be patented and the
prior art are such that the subject matter as a whole would have been obvious at the time the invention

was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-3, 5-12, and 14-21, 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent 6,445,819 to Kinjo and U.S. Patent 6,571,003 to Hillebrand et al. and further in view of U.S. Patent 6,160,923 to Lawton et al.

With regard to claim 1, Kinjo discloses an image enhancement system, comprising memory for storing digital data that defines a graphical image (Fig.1, element 48) and a face detector configured to analyze said digital data and to automatically identify facial data within said digital data stored in said memory (Fig.2, element 100).

Kinjo discloses an image enhancer, but does not disclose automatically <u>locating</u> a facial blemish defined by a portion of said facial data based on a proximity of said facial blemish relative to said facial feature within said graphical image said image enhancer further configured to automatically compensate for said facial blemish by automatically manipulating said portion such that an appearance of said facial <u>blemish</u> is enhanced within said graphical image, *wherein said image enhancer is configured to initiate, without user intervention, manipulation of said portion for enhancing said appearance in response to <u>location</u> of said facial blemish by said image enhancer.*

Hillebrand discloses an image enhancer configured to automatically detect and

locate defect areas in a face image and to create an improved or worsened area for

each of the defect areas (column 2, lines 15-30). Once a face has been detected in a

digital image, several different processes are used to change portions of that image in

order to enhance the appearance of that image. Therefore it would have been obvious

to one of ordinary skill in the art at the time of invention to employ Hillebrand's facial

enhancement system to modify all or part of the facial image detected in the face

detection of Kinjo in order to enhance the appearance of that image.

With regard to the argued part of the claim in italics above, Hillebrand also

discloses wherein the image enhancement occurs without any user intervention (column

6, lines 15-16, column 7, lines 17-21 and 65-66, column 8, lines 33-36, 46-51 and 63-

65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52, column 12, lines 2-3

and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed

by the controller 200." This declaration is interpreted as the steps in the process take

place entirely without user input based on data already programmed into the image

processor or controller. Although Hillebrand allows for user input at nearly every step of

the process, it is also indicated clearly that in one embodiment, the steps are performed

by the controller.

For the sake of argument, if it cannot be agreed as to whether or not Hillebrand

allows for user intervention before the manipulation of said portion for enhancing said

appearance in response to identification of said facial blemish by said image enhancer,

Examiner points to the reference of U.S. Patent 6,160,923 to Lawton et al. Lawton

discloses a device to remove spots or anomalies such as facial blemishes (column 3, lines 3-6) wherein once the area of the blemish is identified, the enhancement of the area of the blemish is performed automatically (column 3, lines 13-17) without user intervention. Lawton further teaches that attributes of identified blemishes to be removed are gathered and using those attributes such imperfections can be automatically removed throughout the image without user intervention (column 4, lines 18-25).

Hillebrand and Lawton are analogous art in that they both teach seeking to remove facial blemishes, a very specific function in image processing. The motivation to combine the Hillebrand and Lawton references is the same motivation to use a computer to automate an image processing function and indeed any process automated by a computer. When processes are automated and do not require user intervention, its just one less thing the user or customer or technician has to do to achieve the desired result of the computer program. Furthermore no hindsight is required to see the benefit of modifying the reference of Hillebrand to automate what is essentially one step in the process of the facial image enhancement. Any number of motivations can be given for automating this step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. Therefore it would have been

obvious to one of ordinary skill in the art at the time of invention to enable automatic

image enhancement without user intervention once a blemish has been identified as

taught by Lawton to enable automated processing of images, and all of the mentioned

benefits of automating computer processing listed above in conjunction with the

controller operated method of Hillebrand already disclosed.

With regard to claim 2, Kinjo and Hillebrand disclose input devices configured to

receive an input. Kinjo discloses a scanner (Fig.1, element 12). Hillebrand discloses

user input indicative of a facial blemish type (Fig. 9, step 902) and wherein said location

of said facial blemish by is based on said input (Fig. 9, element 904).

Hillebrand allows for inputs and specifications obtained from a user interface on

what operations to perform and how to determine facial portions to analyze and

enhance (column 5, lines 30-42 and column 6, lines 29-42). In the combination of Kinjo

and Hillebrand, Hillebrand's image enhancer would operate in accordance with the input

configurations to perform operations on the image input received by Kinjo's input

device. The portion of the image to be modified or the facial feature selected is based

on these inputs.

With regard to claim 3, Kinjo discloses said image enhancer to process color

correction, but does not specifically refer to color blending. Hillebrand discloses said

image enhancer to manipulate portions of an image by blending color values associated

with the defective portion with the color of the skin surrounding the defective portion

(column 2, lines 25-30 and column 12, lines 13-18).

With regard to claim 5, Kinjo discloses said image enhancer, wherein

manipulating said portion, sharpens said appearance of said facial feature (column 10,

lines 65-67).

With regard to claim 6, Kinjo discloses said image enhancer, wherein

manipulating said portion, changes a color of said facial feature (column 10, lines 60-

65).

With regard to claim 7, Kinjo discloses said system including an image capturing

device configured to receive an image of a scene and to produce said digital data based

on said image received by said image capturing device (Fig.1, element 12). In this

embodiment the image capture device is a scanner.

With regard to claim 8, Kinjo discloses said image capturing device including a

lens for receiving said image and an image converter for producing said digital data

based on said image (Fig. 1, elements 12, 28, and 32). The scanner contains a CCD

with lens (28) and analog to digital converter (32).

With regard to claim 9, Kinjo discloses an automatic image enhancement system, comprising means for storing digital data that defines a graphical image (Fig.1, element 48) and face detecting means for analyzing said digital data and for automatically identifying facial data within said digital data stored in said storing means (Fig.2, element 100).

Kinjo discloses an image enhancing means, but does not disclose means for searching said identified facial data for a particular facial feature and for automatically locating a facial blemish defined by a portion of said facial data based on a proximity of said facial blemish relative to said facial feature within said graphical image said image enhancer further configured to automatically compensate for said facial blemish by automatically manipulating upon locating said facial blemish, said portion such that an appearance of said facial feature is enhanced within said graphical image, *wherein said image enhancer is configured to initiate, without user intervention, manipulation of said portion for enhancing said appearance in response to identification of said facial blemish by said image enhancer.*

Hillebrand discloses an image enhancer configured to automatically detect and locate defect areas in a face image and to create an improved or worsened area for each of the defect areas (column 2, lines 15-30). Once a face has been detected in a digital image, several different processes are used to change portions of that image in order to enhance the appearance of that image. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to employ Hillebrand's facial

enhancement system to modify all or part of the facial image detected in the face

detection of Kinjo in order to enhance the appearance of that image.

With regard to the amended part of the claim underlined above, Hillebrand also

discloses wherein the image enhancement occurs without any user intervention (column

6, lines 15-16, column 7, lines 17-21 and 65-66, column 8, lines 33-36, 46-51 and 63-

65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52, column 12, lines 2-3

and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed

by the controller 200." This declaration is interpreted as the steps in the process take

place entirely without user input based on data already programmed into the image

processor or controller. Although Hillebrand allows for user input at nearly every step of

the process, it is also indicated clearly that in one embodiment, the steps are performed

by the controller.

For the sake of argument, if it cannot be agreed as to whether or not Hillebrand

allows for user intervention before the manipulation of said portion for enhancing said

appearance in response to identification of said facial blemish by said image enhancer,

Examiner points to the reference of U.S. Patent 6,160,923 to Lawton et al. Lawton

discloses a device to remove spots or anomalies such as facial blemishes (column 3,

lines 3-6) wherein once the area of the blemish is identified, the enhancement of the

area of the blemish is performed automatically (column 3, lines 13-17) without user

intervention. Lawton further teaches that attributes of identified blemishes to be

removed are gathered and using those attributes such imperfections can be

automatically removed throughout the image without user intervention (column 4, lines 18-25).

Hillebrand and Lawton are analogous art in that they both teach seeking to remove facial blemishes, a very specific function in image processing. The motivation to combine the Hillebrand and Lawton references is the same motivation to use a computer to automate an image processing function and indeed any process automated by a computer. When processes are automated and do not require user intervention, its just one less thing the user or customer or technician has to do to achieve the desired result of the computer program. Furthermore no hindsight is required to see the benefit of modifying the reference of Hillebrand to automate what is essentially one step in the process of the facial image enhancement. Any number of motivations can be given for automating this step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to enable automatic image enhancement without user intervention once a blemish has been identified as taught by Lawton to enable automated processing of images, and all of the mentioned benefits of automating computer processing listed above in conjunction with the controller operated method of Hillebrand already disclosed.

With regard to claim 10, Kinjo discloses a method for enhancing graphical

images, comprising:

receiving digital data defining a graphical image (Fig. 1, elements 32, 36 and 14);

automatically detecting facial data within said digital data (Fig. 2, element 100).

Kinjo does not explicitly disclose searching said facial data for data that defines a

particular facial feature and automatically locating, a facial blemish defined by a set of

said digital data based on a proximity of said facial blemish relative to said particular

facial feature within said graphical image; and automatically compensating for said

facial blemish in response to said locating, without user intervention, said compensating

comprising manipulating said set of digital data.

Hillebrand discloses an image enhancer configured to automatically detect and

locate defect areas in a face image and to create an improved or worsened area for

each of the defect areas (column 2, lines 15-30). Once a face has been detected in a

digital image, several different processes are used to change portions of that image in

order to enhance the appearance of that image. Therefore it would have been obvious

to one of ordinary skill in the art at the time of invention to employ Hillebrand's facial

enhancement system to modify all or part of the facial image detected in the face

detection of Kinjo in order to enhance the appearance of that image.

With regard to the amended part of the claim underlined above, Hillebrand also

discloses wherein the image enhancement occurs without any user intervention (column

6, lines 15-16, column 7, lines 17-21 and 65-66, column 8, lines 33-36, 46-51 and 63-

65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52, column 12, lines 2-3

and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed

by the controller 200." This declaration is interpreted as the steps in the process take

place entirely without user input based on data already programmed into the image

processor or controller. Although Hillebrand allows for user input at nearly every step of

the process, it is also indicated clearly that in one embodiment, the steps are performed

by the controller.

For the sake of argument, if it cannot be agreed as to whether or not Hillebrand

allows for user intervention before the manipulation of said portion for enhancing said

appearance in response to identification of said facial blemish by said image enhancer,

Examiner points to the reference of U.S. Patent 6,160,923 to Lawton et al. Lawton

discloses a device to remove spots or anomalies such as facial blemishes (column 3,

lines 3-6) wherein once the area of the blemish is identified, the enhancement of the

area of the blemish is performed automatically (column 3, lines 13-17) without user

intervention. Lawton further teaches that attributes of identified blemishes to be

removed are gathered and using those attributes such imperfections can be

automatically removed throughout the image without user intervention (column 4, lines

18-25).

Hillebrand and Lawton are analogous art in that they both teach seeking to

remove facial blemishes, a very specific function in image processing. The motivation

to combine the Hillebrand and Lawton references is the same motivation to use a

computer to automate an image processing function and indeed any process automated

by a computer. When processes are automated and do not require user intervention, its just one less thing the user or customer or technician has to do to achieve the desired result of the computer program. Furthermore no hindsight is required to see the benefit of modifying the reference of Hillebrand to automate what is essentially one step in the process of the facial image enhancement. Any number of motivations can be given for automating this step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to enable automatic image enhancement without user intervention once a blemish has been identified as taught by Lawton to enable automated processing of images, and all of the mentioned benefits of automating computer processing listed above in conjunction with the controller operated method of Hillebrand already disclosed.

With regard to Claims 11-17, they repeat the elements in claims 2-8 with reference to a method. With regard to depending claims 11-17, refer to the discussion of claims 2-8 respectively. Claims 11-17 are amended only by eliminating the word "step" in each claim.

With regard to claim 18, the combination of Kinjo and Hillebrand applies as discussed in regard to claim 9. Claim 9 cites all of the elements of claim 18, with the exception of explicitly naming a facial skin blemish. Hillebrand discloses this feature (column 2, lines 17-22 and column 6, lines 1-5). With regard to the new limitation wherein said image enhancer is further configured to automatically manipulate, upon locating said portion for enhancing an appearance of said skin blemish within said graphical image, Hillebrand also discloses wherein the image enhancement occurs without any user intervention (column 6, lines 15-16, column 7, lines 17-21 and 65-66, column 8, lines 33-36, 46-51 and 63-65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52, column 12, lines 2-3 and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed by the controller 200." This declaration is interpreted as the steps in the process take place entirely without user input based on data already programmed into the image processor or controller. Although Hillebrand allows for user input at nearly every step of the process, it is also indicated clearly that in one embodiment, the steps are performed by the controller.

With regard to claim 19, Hillebrand discloses the image enhancer configured to locate at least one additional facial feature and locate said portion of said facial data defining said skin blemish by determining the likely proximity of said skin blemish to said located at least one additional facial feature. Hillebrand discloses several methods of sub-image determination (column 7, lines 16-40 and 60-65 and column 8, lines 5-10). Hillebrand discloses locating sub-images such as an under eye border and then

discloses enhancing the image portion according to the defect type in that area such as

wrinkles blemishes red spots etc.

With regard to claim 20, Hillebrand discloses the said blemish to be a wrinkle

(column 8, lines 5-8).

With regard to claim 21, the discussions of claims 1, 9 and 18 apply. The

method is considered to be included in the system.

With regard to claim 23, the combination of Kinjo and Hillebrand discloses the

system of claim 1, and Kinjo discloses detecting multiple face candidate regions (Fig. 2,

element 102 and Fig. 3) and in the combination of Kinjo and Hillebrand, image

enhancement would take place on any number of faces once they are detected.

It should be noted that the purpose of the invention of Kinjo is to detect face

regions using overlapping detected regions and determining face regions based on

variable thresholds and conditions for facial regions. It should be understood that if

there are multiple face regions in a given image, that the invention of Kinjo will find them

all depending on the various conditions and thresholds set for facial region

determination (column 19, lines 1-20, column 20, lines 40-55 and column 21, lines 45-

65). Kinjo also teaches performing enhancement on the extracted face regions once

they are detected. It should now be understood that Kinjo discloses detecting all facial

candidate regions in an image and based on the conditions determines all existing facial

regions. Therefore it would have been obvious to one of ordinary skill in the art at the

time of invention to enhance any number of face regions detected by the facial region

detection system of Kinjo in combination by the face enhancements techniques taught

by Hillebrand and Lawton in order to enhance all of the facial regions in an image.

Hillebrand discloses wherein the image enhancement occurs without any user

intervention (column 6, lines 15, 16, column 7, lines 17-21 and 65-66, column 8, lines

33-36, 46-51 and 63-65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines 51-52,

column 12, lines 2-3 and 10-14). Hillebrand consistently states, "in one embodiment the

steps are performed by the controller 200." This declaration is interpreted as the steps

in the process take place entirely without user input based on data already programmed

into the image processor or controller. Although Hillebrand allows for user input at

nearly every step of the process, it is also indicated clearly that in one embodiment, the

steps are performed by the controller.

For the sake of argument, if it cannot be agreed as to whether or not Hillebrand

allows for user intervention before the manipulation of said portion for enhancing said

appearance in response to identification of said facial blemish by said image enhancer,

Examiner points to the reference of U.S. Patent 6,160,923 to Lawton et al. Lawton

discloses a device to remove spots or anomalies such as facial blemishes (column 3,

lines 3-6) wherein once the area of the blemish is identified, the enhancement of the

area of the blemish is performed automatically (column 3, lines 13-17) without user

intervention. Lawton further teaches that attributes of identified blemishes to be

removed are gathered and using those attributes such imperfections can be

automatically removed throughout the image without user intervention (column 4, lines 18-25).

Hillebrand and Lawton are analogous art in that they both teach seeking to remove facial blemishes, a very specific function in image processing. The motivation to combine the Hillebrand and Lawton references is the same motivation to use a computer to automate an image processing function and indeed any process automated by a computer. When processes are automated and do not require user intervention, its just one less thing the user or customer or technician has to do to achieve the desired result of the computer program. Furthermore no hindsight is required to see the benefit of modifying the reference of Hillebrand to automate what is essentially one step in the process of the facial image enhancement. Any number of motivations can be given for automating this step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to enable automatic image enhancement without user intervention once a blemish has been identified as taught by Lawton to enable automated processing of images, and all of the mentioned benefits of automating computer processing listed above in conjunction with the controller operated method of Hillebrand already disclosed.

With regard to claim 24, the discussion of claim 23 applies.

With regard to claim 25, the discussion of claim 23 applies.

With regard to claim 26, the discussion of claim 23 applies.

With regard to claim 27, the discussion of claim 23 applies.

With regard to claim 28 Kinjo discloses an automatic image enhancement

system, comprising memory (Fig. 1, element 48) for storing digital data that defines a

graphical image, said graphical image containing a plurality of faces (Fig. 2, elements

100 and 102). Kinjo disclose multiple face candidate regions. It should be noted that

the purpose of the invention of Kinjo is to detect face regions using overlapping

detected regions and determining face regions based on variable thresholds and

conditions for facial regions. It should be understood that if there are multiple face

regions in a given image, that the invention of Kinjo will find them all depending on the

various conditions and thresholds set for facial region determination (column 19, lines 1-

20, column 20, lines 40-55 and column 21, lines 45-65). Kinjo also teaches performing

enhancement on the extracted face regions once they are detected. It should now be

understood that Kinjo discloses detecting all facial candidate regions in an image and

based on the conditions determines all existing facial regions. Therefore it would have

been obvious to one of ordinary skill in the art at the time of invention to enhance any

number of face regions detected by the facial region detection system of Kinjo in

combination by the face enhancements techniques taught by Hillebrand and Lawton in

order to enhance all of the facial regions in an image.

Kinjo also discloses a face detector configured to detect each of said faces (Fig.

2, element 100).

Kinjo discloses enhancing said faces once found (column 20, lines 40-55) but

does not disclose an image enhancer configured to analyze said faces, said image

enhancer further configured to automatically detect and enhance at least one respective

facial blemish in each of said faces.

Hillebrand discloses an image enhancer configured to automatically detect and

locate defect areas in a face image and to create an improved or worsened area for

each of the defect areas (column 2, lines 15-30). Once a face has been detected in a

digital image, several different processes are used to change portions of that image in

order to enhance the appearance of that image. This of course applies to multiple

detected facial images. Therefore it would have been obvious to one of ordinary skill in

the art at the time of invention to employ Hillebrand's facial enhancement system to

modify all or part of the facial image detected in the face detection of Kinjo in order to

enhance the appearance of that image.

Hillebrand also discloses wherein the image enhancement occurs without any

user intervention (column 6, lines 15-16, column 7, lines 17-21 and 65-66, column 8,

lines 33-36, 46-51 and 63-65, column 9, lines 5-7, 15-17 and 26-28, column 10, lines

51-52, column 12, lines 2-3 and 10-14). Hillebrand consistently states, "in one embodiment the steps are performed by the controller 200." This declaration is interpreted as the steps in the process take place entirely without user input based on data already programmed into the image processor or controller. Although Hillebrand allows for user input at nearly every step of the process, it is also indicated clearly that in one embodiment, the steps are performed by the controller.

Hillebrand further discloses wherein the image enhancer is configured to detect each said facial blemish by searching a respective one of said detected faces for a particular facial feature and determining the likely proximity of the facial blemish relative to the particular facial feature (column 2, lines 1-25).

For the sake of argument, if it cannot be agreed as to whether or not Hillebrand allows for user intervention before the manipulation of said portion for enhancing said appearance in response to identification of said facial blemish by said image enhancer, Examiner points to the reference of U.S. Patent 6,160,923 to Lawton et al. Lawton discloses a device to remove spots or anomalies such as facial blemishes (column 3, lines 3-6) wherein once the area of the blemish is identified, the enhancement of the area of the blemish is performed automatically (column 3, lines 13-17) without user intervention. Lawton further teaches that attributes of identified blemishes to be removed are gathered and using those attributes such imperfections can be automatically removed throughout the image without user intervention (column 4, lines 18-25).

Hillebrand and Lawton are analogous art in that they both teach seeking to remove facial blemishes, a very specific function in image processing. The motivation to combine the Hillebrand and Lawton references is the same motivation to use a computer to automate an image processing function and indeed any process automated by a computer. When processes are automated and do not require user intervention, its just one less thing the user or customer or technician has to do to achieve the desired result of the computer program. Furthermore no hindsight is required to see the benefit of modifying the reference of Hillebrand to automate what is essentially one step in the process of the facial image enhancement. Any number of motivations can be given for automating this step: less room for user error, faster processing, allows user the freedom to do something else, etc. It is exceedingly well known in the art to automate processes with computers. In the particular case of Lawton, it is taught that "attributes for the identified spot are then used to identify similar spots throughout the digital image, which are also automatically removed." This is a clear example of how once the computer learns what to do, it continues to do it unaided. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to enable automatic image enhancement without user intervention once a blemish has been identified as taught by Lawton to enable automated processing of images, and all of the mentioned benefits of automating computer processing listed above in conjunction with the controller operated method of Hillebrand already disclosed.

With regard to claim 29, the discussion of claim 28 applies. The method is disclosed in the use of the system.

With regard to claim 30, the discussions of claims 28 and 29 apply. The discussion of automatically, without user intervention has been exhausted in the discussions above.

With regard to new claim 31, Hillebrand discloses wherein said facial blemish is a wrinkle and wherein said facial feature is an eye within said graphical image (see abstract and column 6, lines 1-8). Hillebrand discloses the corner of an eye to be a landmark and a wrinkle to be a type of defect.

With regard to claim 32, the discussion of claim 31 applies.

6.   Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Kinjo and Hillebrand and Lawton in view of U.S. Patent 5,835,616 to Lobo.

With regard to claim 4, Kinjo discloses said image enhancer, wherein manipulating said portion, applies various image-processing techniques. Neither Kinjo nor Hillebrand expressly disclose blurring the appearance of the facial feature. Lobo

discloses enhancing a facial image by blurring the image (Abstract). Lobo teaches that

the blurring filter is used to better set forth the facial features of the image (Abstract).

Blurring is a well-known image enhancing technique. Therefore it would have been

obvious to one of ordinary skill in the art at the time of invention to add blurring to the list

of available facial feature enhancing techniques listed by Kinjo in order to better set

forth the facial features of the image.

With regard to claim 13, the discussion of claim 4 applies. The method used in

the system is considered to be included in the system.

Conclusion

Applicant's amendment necessitated the new grounds of rejection presented in

the Office Action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wes Tucker whose telephone number is 571-272-7427. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Wes Tucker

1-11-05

VIKKRAM BALI
PRIMARY EXAMINER